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PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference ./.	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IT99/00051	International filing date (day/month/year) 01/03/1999	Priority date (day/month/year) 02/03/1998
International Patent Classification (IPC) or national classification and IPC B31F1/07		
Applicant FABIO PERINI S.P.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 8 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 24/08/1999	Date of completion of this report 05.06.2000
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer: Augustin, W Telephone No. +49 89 2399 2629 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IT99/00051

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-19 as originally filed

Claims, No.:

1-49 as received on 12/02/2000 with letter of 08/02/2000

Drawings, sheets:

1/8-8/8 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
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International application No. PCT/IT99/00051

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-20, 22, 30, 36-49
	No:	Claims	21, 23-29, 31-35
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-20, 22, 30, 36-49
Industrial applicability (IA)	Yes:	Claims	1-49
	No:	Claims	

2. Citations and explanations

see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Item V

- 1.) The present application does not satisfy the criterion set forth in Article 33(2) PCT because **the subject-matter of Claims 21, 23-29, 31-35 is not new** in respect of prior art as defined in the regulations (Rule 64(1)-(3) PCT) [see **US-A-4 320 162** in particular figs. 1-3 with regard to claims 21, 23, 24, 32, 33, first layer (21), first set of protuberances (25, 27), second set of protuberances of major dimensions and minor density (24, 26), second layer (22), glue which is applied according to column 2, line 64 - column 3, line 13; figs. 4-6 with regard to claims 25-28, 34, 35; figs. 7, 8 with regard to claims 29, 31].
- 2.) The present application does not satisfy the criterion set forth in Article 33(3) PCT because **the subject-matter of Claims 1, 36 does not involve an inventive step** (Rule 65(1)(2) PCT).

Document **US-A-4 320 162**, which is considered to represent the most relevant state of the art, discloses (cf. paragraph 1 above) a method/device from which the subject-matter of claims 1, 36 differs in that the first and second protuberances are generated by different method steps/embossing units.

As clearly shown by document EP-A-408 248 (compare figs 1 and 2) it is generally known to the person skilled in the art that this feature is an equivalent to the one step method/device of document US-A-4 320 162 and can be interchanged with that feature where circumstances make it desirable. Consequently, the subject-matter of claims 1, 36 lacks an inventive step

- 3.) The dependent claims 2-20, 22, 30, 37-49 do not contain any additional features which, in combination with the features of any claim to which they refer, involve an inventive step since they come within the scope of the customary practice followed by persons skilled in the art (see for example US-A-4 320 162 or EP-A-408 248).

Consequently, **the subject-matter of claims 2-20, 22, 30, 37-49 also lacks an inventive step** (Rule 65(1)(2) PCT).

**INTERNATIONAL PRELIMINARY
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Item VIII

The vague and imprecise statement "guiding concept" in the description on page 18, line 31 implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (Article 6 PCT) when used to interpret them (see also the PCT Guidelines, PCT/GL/3 III, 4.3a).

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PCT/IT99/00051
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Our Ref.: 46357 - 2/2000

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NEW CLAIMS

1. A method for producing an embossed sheet material comprising at least two layers of web material (V1, V2; V1, V3) joined together, including the steps of:

- 10 - embossing a first layer of web material (V1), previously furnished with a background pattern made up of a first set of protuberances (P2; P102; P5), so as to generate on it a second set of protuberances (P4; P104; P5), which are partially superimposed on the first set of protuberances making up the background pattern, and defining an ornamental motif made up of a
15 pattern of major dimensions and minor density with respect to the background pattern;

- to couple by means of glue (C) to said first layer of web material (V1) at least a second layer of web material (V2; V3),

characterized in that said glue (C) is applied in areas corresponding to at least
20 some of the protuberances of said second set of protuberances (P4; P104; P5), the sheet material being substantially free of glue in correspondence of the protuberances of said first set of protuberances (P2; P102; P1) forming said background pattern.

2. Method as claimed in claim 1, characterized in that said background
25 pattern on the first layer of web material (V1) is obtained by means of embossing in line and before the embossing of the first layer (V1) for generating of said ornamental motif.

3. Method as claimed in claim 1 or 2, characterized by embossing said
second layer of web material (V3) for generating thereon a third set of protuberances (P6; P106) having major dimensions and minor density with respect
30 to the protuberances (P2; P204) of the first set.

4. Method as claimed in claim 3, characterized in that the protuberances of the second and third sets (P4, P6; P104, P106) have the same density and are inserted inside one another.

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5. Method as claimed in claim 2, characterized in that it involves generating said first set of protuberances (P2; P102) and said second set of protuberances (P4; P104) on the first layer (V1) by running said first layer (V1) around a first pressure roller (5; 105) interacting with a first and a second embossing cylinders (1, 3; 101; 103) that have respectively first and second sets of points (1P, 3P; 101P, 103P), the second set of points (3P; 103P) being of larger dimensions and lower density than the first set of points (1P; 101P).
6. Method as claimed in claim 5, characterized in that it involves joining together said first and said second layers (V1, V2) between the first pressure roller (5; 105) and a second embossing cylinder (3; 103) that interacts with the first pressure roller (5; 105).
7. Method as claimed in claim 5 or 6, characterized in that said second embossing cylinder (3) interacts with a second pressure roller (7) to generate said third set of protuberances (P6) on said second layer (V2).
8. Method as claimed in one or more of claims 3 to 7, characterized in that it involves applying a glue to at least some of the protuberances of said third set (P6) on said second layer (V2), and joining said two layers (V1, V2) by gluing them together, with the protuberances of said third set (P6) in correspondence of the protuberances of said second set (P4).
9. Method as claimed in one or more of claims 3 to 8, characterized in that it involves embossing said second layer (V2) with a greater embossed depth than the embossed depth of the second set of protuberances (P4) on the first layer (V1).
10. Method as claimed in claim 5, characterized in that it involves running said second layer (V2) around said first pressure roller (105), downstream of the area in which the first layer (V1) is embossed between said first embossing cylinder (101) and said first pressure roller (105), and embossing said second layer (V2) on said first layer (V1) between the first pressure roller (105) and the second embossing cylinder (103).
11. Method as claimed in claim 10, characterized in that it involves: arranging a second pressure roller (107) around the second embossing cylinder (103); and feeding a third layer of web material (V3) around said second pressure roller (107), between the latter and the second embossing cylinder (103).

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so as to generate a fourth set of protuberances (P108) on it; the first, second and third layers (V1, V2, V3) being laminated together between the second embossing cylinder (103) and the second pressure roller (107).

12. Method as claimed in claim 11, characterized in that it involves applying a glue (C) to at least some of the protuberances of said second set of protuberances (P104) and gluing together the three layers (V1, V2, V3) by causing the glue (C) to migrate through the first layer (V1) toward the second layer (V2).

13. Method as claimed in claim 3 or 4, characterized in that it involves generating said first set of protuberances (P2) by means of a first embossing cylinder (1') with its own pressure roller (5'), and generating said second set of protuberances (P4) with another pressure roller (5) and a second embossing cylinder (3), with which latter a third pressure roller (7) interacts, the second embossing cylinder and the third pressure roller generating said third set of protuberances (P6) on said second layer (V2).

14. Method as claimed in claim 1, characterized in that said second layer of web material (V3) is furnished with a background pattern made up of a set of protuberances (P3).

15. Method as claimed in claim 13, characterized in that said background pattern of the second layer of web material (V3) is obtained by means of embossing in line and before the coupling with the first layer of web material (V1).

16. Method as claimed in claim 14 or 15, characterized in that the protuberances (P1, P3) of said background pattern on the first and on the second layer and the protuberances (P5) of said ornamental motif on the first layer project on the same face of the corresponding layer (V1, V3).

17. Method as claimed in claim 16, characterized in that the protuberances forming said ornamental motif have a greater height than that of the protuberances forming said background pattern, and in that said two layers are joined together by gluing at the positions of the protuberances (P5) of said ornamental motif.

18. Method as claimed in claim 14, 15, 16 or 17, characterized in that said first and said second layers are separately embossed by means of corre-

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5 sponding first embossing units (301-303, 305-307; 201-203, 205-207), which generate the set of protuberances forming the background pattern on the two layers (V1, V3), and are then run around an embossing cylinder (209; 309) provided with points (209P; 309P) for generating said ornamental motif on the first (V1) of said layers and for joining the layers.

10 19. Method as claimed in claim 18, characterized in that one (V1) of said layers is embossed according to said background pattern between a pair of rollers (401, 403) of a first embossing unit and is subsequently embossed on an embossing cylinder (409) provided with points (409P) for generating said ornamental motif; in that the second layer (V3) is embossed between a further embossing cylinder (421) and a pressure roller (423), said further embossing cylinder being provided with points (421P) for generating said background pattern on the second layer (V3); and in that the two layers are joined between said two embossing cylinders (409, 421).

15 20. Method as claimed in one or more of claims 14 to 19, characterized in that said layers (V1, V3) are joined together by means of a colored glue.

20 21. An embossed laminar product comprising at least two layers of web material (V1, V2; V1, V3) wherein a first (V1) of said layers of web material has a background pattern made up of a first set of protuberances (P2; P102; P1), on which is superimposed an ornamental motif made up of a second set of protuberances (P4; P104; P5) of major dimensions and minor density with respect to the first set of protuberances, and in which to said first layer (V1) is coupled a second layer of web material (V2; V3) by means of glue (C); characterized in that said glue is applied in correspondence of said second set of protuberances (P4; P104; P5) the protuberances of said first set (P2; P102; P1) forming said background pattern being substantially free of glue:

25 22. Sheet product as claimed in claim 21, characterized in that said two layers (V1, V2) are glued together by a colored glue.

30 23. Sheet product as claimed in claim 21, or 22, characterized in that said second layer of web material (V2; V3) is embossed.

24. Sheet product as claimed in claim 22, characterized in that said second layer (V2) has an embossing comprising a third set of protuberances (P6; P106) of major dimensions and minor density with respect to the protu-

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berances of said first set of protuberances (P1; P102) defining the background pattern on the first layer (V1).

25. Sheet product as claimed in claim 24, characterized in that the protuberances of said first set (P2; P102) are squeezed at the positions of the protuberances of said second set of protuberances (P4; P104) of the first layer (V1).

26. Sheet product as claimed in claim 24 or 25, characterized in that said protuberances of the third set of protuberances (P6; P106) on the second layer (V2) are inserted inside the protuberances of said second set of protuberances (P4; P104) on said first layer (V1).

27. Sheet product as claimed in one or more of claims 24 to 26, characterized in that the protuberances of the third set of protuberances (P6; P106) on the second layer (V2) are higher than the protuberances of the second set of protuberances (P4; P104) on the first layer (V1).

28. Sheet product as claimed in one or more of claims 24 to 27, characterized in that said two layers are glued together on at least some of the protuberances of the third set of protuberances (P6; P106) on said second layer (V2).

29. Sheet product as claimed in one or more of claims 24 to 27, characterized in that it comprises a third layer (V3) joined to the first and second layers (V1, V2) at the protuberances of the second set of protuberances (P104) of said first layer (V1).

30. Sheet product as claimed in claim 29, characterized in that said third layer (V3) is embossed with a fourth set of protuberances (P108) arranged with the same pattern as the protuberances of the third set of protuberances (P106) on said second layer (V2), but not so high.

31. Sheet product as claimed in claim 29 or 30, characterized in that said third layer (V3) is glued to said first layer (V1) on at least some of the protuberances of said second set of protuberances (P104).

32. Sheet product (N) as claimed in claim 23, characterized in that said second layer (V3) comprises at least one background embossing consisting of a plurality of third protuberances (P3) having minor dimensions and major density with respect to said ornamental motif.

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33. Sheet product as claimed in claim 32, characterized in that the protuberances of each layer project from the surface of the corresponding layer facing the interior of the sheet material.

34. Sheet product as claimed in claims 32 to 33, characterized in that said third protuberances (P3) in said second layer (V3) are squeezed at the positions of the second protuberances (P5) of the first layer, forming said ornamental motif.

35. Sheet product as claimed in claim 34, characterized in that, where it meets the protuberances (P5) forming said ornamental motif in the first layer (V1), said second layer (V3) has protuberances on the surface opposite that facing the first layer (V1).

36. A device for the production of a web material (N) made up of at least two layers (V1, V2; V1, V3), comprising:

- a first embossing unit for generating on at least a first (V1) of said layers a background pattern made up of a first set of protuberances (P2; P102; P1);
- a second embossing unit for generating on said first layer (V1) an ornamental motif made up of a second set of protuberances (P4; P104; P1) of major dimensions and minor density with respect to the protuberances (P2; P102; P1) of said first set and partially superimposed on said background pattern;
- a glue applicator for applying a glue for coupling a second layer to said first layer;

characterized in that said glue applicator applies said glue on the protuberances (P4; P104; P5) of said second set, but not on the protuberances of said first set forming said background pattern, and cooperates with said second embossing unit.

37. Device as claimed in claim 36, characterized by a first pressure roller (5; 105) which is common to said first and said second embossing unit interacting with a first and a second embossing cylinders (1; 3; 101; 103) carrying respective points (1P, 3P; 101P, 103P) on their cylindrical surfaces for generating on the first layer (V1) said first and said second sets of protuberances.

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38. Device as claimed in claim 37, characterized in that the points (1P; 101P) of the first embossing cylinder (1; 101) have greater density and smaller dimensions than the points (3P; 103P) of the second embossing cylinder (3; 103).

5 39. Device as claimed in claim 38, characterized in that it comprises a second pressure roller (7; 107) interacting with the second embossing cylinder (3; 103).

40. Device as claimed in claim 36, characterized in that said first embossing unit comprises a first pressure roller (5') interacting with a first embossing cylinder (1') and that said second embossing unit comprises a second embossing cylinder (3) interacting with a second and a third pressure rollers (5, 7).

41. Device as claimed in claim 36, characterized in that it comprises:
- a further embossing unit (305, 307; 421, 423; 205, 207), for a second layer (V3), said first embossing unit and said further embossing unit generating in said first and said second layers a background pattern consisting of a first set of protuberances (P1; P3).

42. Device as claimed in claim 41, characterized in that said means for coupling together said two layers join the two layers at the positions of the protuberances of the second set of protuberances which form said ornamental motif.

43. Device as claimed in claim 41 or 42, characterized in that said first embossing unit and said further embossing unit for generating said background pattern on the first and on the second layer (V1, V3) each comprise a pair of embossing rollers, one of which (1, 5; 201, 205) is provided with points (1P, 5P; 201P, 205P) while the other (3, 7; 203, 207) is provided with a yielding surface.

44. Device as claimed in claim 41 or 42, characterized in that said means for coupling said two layers consist of an embossing cylinder (9; 209) of the second embossing unit and a marrying roller (13; 213), said embossing cylinder (9; 209) being provided with points (9P; 209P) for generating the second set of protuberances forming said ornamental motif.

45. Device as claimed in claim 44, characterized in that said marrying

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roller (13) has a substantially rigid cylindrical surface.

46. Device as claimed in claim 41 or 42, characterized in that the first embossing unit for the first layer (V1) comprises a pair of embossing rollers (401, 403); in that the second embossing unit comprises an embossing cylinder (409), provided with points (409P) for generating the second set of protuberances (P5) forming said ornamental motif, and interacting with a pressure roller (411); and in that the further embossing unit (421, 423) for the second layer (V3) comprises a further embossing cylinder (421) provided with points (421P) and interacting with a pressure roller (423) having a yielding surface.

47. Device as claimed in claim 46, characterized in that said means for coupling said layers consist of said two embossing cylinders (409, 421), which form between them a lamination area in which the points (409P, 421P) of the two embossing cylinders interact with each other.

48. Device as claimed in one or more of claims 36 to 47, characterized in that said second embossing unit has an embossing cylinder (309; 409; 209) with interchangeable points (309P, 409P, 209P).

49. Device as claimed in claim 41, characterized in that the first embossing unit (301, 303) for the first layer (V1) comprises a roller (301) provided with points (301P) and interacting with a pressure roller (311) covered with yielding material, which interacts with an embossing cylinder (309) of the second embossing unit (309, 311).